

CLAIMS

What is claimed is:

1. A heat sink for cooling heat-generating electrical equipment having a surface profile, the heat sink comprising a plate and a deformable membrane attached to the plate to define an enclosed
5 volume, wherein, when the heat sink is positioned in proximity to the equipment and a deformation force is applied to the membrane, the membrane conforms to the surface profile.
2. The invention of claim 1, wherein, when the deformation force is removed, the membrane
10 retains a conformed shape.
3. The invention of claim 1, further comprising a support frame, wherein:
the plate and the deformable membrane are mounted on the frame; and
the frame is adapted to be mounted on the equipment.
- 15 4. The invention of claim 3, wherein:
the support frame has a planar cross-section area; and
the deformable membrane has a surface area greater than the planar cross-section area.
5. The invention of claim 1, wherein the membrane comprises a metal foil layer.
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6. The invention of claim 5, wherein the membrane conforms to the surface profile by forming
a pattern of creases.
7. The invention of claim 5, wherein the membrane further comprises a dielectric layer located
25 at an outer surface of the membrane with respect to the enclosed volume.
8. The invention of claim 1, wherein the plate has a corrugated shape.
9. The invention of claim 1, wherein the enclosed volume is a sealed volume provided with one
30 or more fittings, which allow the enclosed volume to be filled with an externally supplied substance.
10. The invention of claim 9, wherein the heat sink is configured for fluid circulation through
the enclosed volume.
- 35 11. The invention of claim 1, wherein the enclosed volume contains a heat conducting fluid
having thermal conductivity greater than air.

12. A method of cooling heat-generating electrical equipment having a surface profile, the method comprising:

- 5 (A) positioning a heat sink in proximity to the equipment, wherein the heat sink comprises a plate and a deformable membrane attached to the plate to define an enclosed volume; and
(B) applying a deformation force to conform the membrane to the surface profile.

10 13. The invention of claim 12, wherein, when the deformation force is removed, the membrane retains a conformed shape.

14. The invention of claim 12, wherein:
the heat sink further comprises a support frame;
the plate and the deformable membrane are mounted on the frame; and
the frame is mounted on the equipment.

15 15. The invention of claim 14, wherein:
the support frame has a planar cross-section area; and
the deformable membrane has a surface area greater than the planar cross-section area.

20 16. The invention of claim 12, wherein the membrane comprises a metal foil layer and a dielectric layer adapted to provide electrical insulation between the heat sink and the equipment.

25 17. The invention of claim 12, wherein the enclosed volume is a sealed volume provided with one or more fittings, which allow the enclosed volume to be filled with an externally supplied substance.

18. The invention of claim 17, wherein step (B) comprises applying air pressure to the enclosed volume.

30 19. The invention of claim 12, further comprising transferring a heat-conducting fluid into the enclosed volume, wherein the fluid has thermal conductivity greater than air.

20. The invention of claim 19, further comprising circulating the fluid through the enclosed volume.